"8. Astronomers are now apparently finding many difficulties in the present duplication of time, and are desirous of a speedy change.

"9. At sea it causes but little practical inconvenience, as the two systems do not come into collision, being used for totally different purposes; and my Lords agree with the opinion expressed to them by the Board of Trade, that the change will not be unattended with risk from the possibility of mistakes during the period of transition, and that it must be made with all possible precautions.

"My Lords also fully recognise that the fact of the change rendering the existing epitomes and text-books of navigation to a great extent useless must receive due consideration from several points of view.

"10. It does not, however, appear to my Lords that there is sufficient reason to cause them to place obstacles in the way of making the change desired by British astronomers and many seamen, and recommended by the unanimous votes of the Delegates of the Washington Conference, as they consider that the rearrangement of the Nautical Almanac may be so carried out as to minimise the above-mentioned risks.

"11. My Lords will, therefore, be prepared to sanction such alterations in the Nautical Almanac as will be necessary to establish the change to the new reckoning at a date sufficiently far in advance to give ample warning to seamen.

"12. As, however, the fundamental objects in view of the Washington Conference were, to simplify and unify the modes of reckoning time, to remove present discrepancies, and to endeavour to establish an international system, it would appear that no decided move of any kind should be made until the views of other nations, and more especially those maritime powers which publish astronomical ephemerides, are ascertained. It would be manifestly contrary to the interests of simplification that England should alter the practice of centuries only to find herself alone in the new method of reckoning astronomical time; nor would it be courteous to announce her intention of so doing without consulting other Governments on the steps proposed by their representatives, but not plenipotentiaries, at the Washington Conference.

"13. My Lords will, therefore, be pleased to learn that the opinions and intentions of the other maritime nations have been ascertained at as early a date as practicable, in view of the wishes of British astronomers.

"I am, &c.

"(Signed) EVAN MACGREGOR.

"The Secretary, Science and Art Department,
"South Kensington, S.W."

After the receipt of the second letter from the Admiralty another meeting of the committee was held, and the following report was drawn up for the information of my Lords:—

"Your committee find that the Science and Art Department having consulted the various bodies named in the accompanying list, the first five of the resolutions of the Washington Prime Meridian Conference have received unanimous approval, but demand no action on the part of this country.

"As regards the sixth resolution, which proposes that as soon as may be practicable the astronomical and nautical days shall be arranged everywhere to begin at mean midnight, it appears that the opinion in England is generally in favour of this change in the mode of reckoning astronomical time, and that the Admiralty have expressed their willingness to take the necessary steps to give effect to this resolution of the Conference by introducing civil reckoning into the British Nautical Almanac, the rearrangement of which they are satisfied may be so carried out as to minimise risks from mistakes by navigators during the period of transition, if other maritime nations are prepared to adopt the proposed method of reckoning astronomical time.

"Under these circumstances your committee suggest that the Foreign Office be invited to communicate this result of the inquiries of the Science and Art Department to the Government of the United States, and to inquire whether, as conveners of the Washington Conference, they are now prepared to take steps to invite the adhesion of other maritime States"

Next follows a letter from the Science and Art Department to the Foreign Office, asking them to make the inquiry referred to in the previous report, and another from our ambassador at Washington, stating that the United States Government had taken the matter in hand.

FACILITIES FOR BOTANICAL RESEARCH

IN an article under the above heading, published in NATURE, vol. xxxi. p. 460, I endeavoured to draw the attention of our younger botanists to the importance of extending their studies over a wider field than is at present usual, and mentioned some easily accessible stations at which students might observe tropical vegetation. Since that article was written, I have had the opportunity of acting on my own suggestion, and of visiting Ceylon; I am therefore now in a position to enlarge upon my previous suggestions, and to fill in from personal experience many details which, though often trivial in themselves, may yet bring the possibility of Eastern travel home to the mind of some in such a way as may lead to future action. But while giving some account of the facilities for botanical work in the East, care must be taken not to over-colour the picture; it happens too often that writers of an enthusiastic bent raise expectations in the minds of their readers, which actual experience can only disappoint: in the following paragraphs I shall endeavour to make a purely matter-of-fact statement, and leave the colouring to be filled in at the will or opportunity of the reader. Taking first Peradeniya, we may consider what are its attractions as a station for botanical work, and then pass on to discuss the relative merits of other stations.

In the first place, hardly any port in the east is more accessible than Colombo: it has been aptly called the "Clapham Junction" of the East: the steamers of all nations meet there, and the competition between them produces a moderate scale of fares. Once there, a direct train service lands the traveller in about three hours almost at the gate of the Royal Gardens; the mechanical discomforts of many a journey to remote districts in the United Kingdom are greater than this. The cost of the journey will vary according to the line of steamers selected; by the Peninsular and Oriental line a return ticket can be had from London to Colombo for 90*l*., 100*l*., or 110*l*., according as the return journey is completed in three, six, or twelve months. The charges on the Messageries Maritimes are about the same. The Star, Clan, and British India lines make more moderate charges, but the pace is correspondingly slower. It is little use making a journey of more than 5000 miles for a brief visit; and it may be presumed that, except where the circumstances are extraordinary, students would find it convenient to stay in Ceylon for three or four months, or more. Little is to be gained by scamping an expedition such as this, in which it may often happen that a man may gain his first and last experience of tropical nature; further, the surroundings are so new that it is some little time before one with even a good knowledge of our temperate flora can accommodate himself sufficiently to them to carry on successful work. We may then regard the cost of the journey as 100*l*., and the time required to make it a success about six months. The choice of season is an important point: in a country of alternating wet and dry

periods it is well to experience both, and for the botanical collector it is important that collections should be finally made up in dry weather; it would be found that leaving England in November, and landing at the beginning of December, the weather would still be wet and vegetation luxuriant, but preservation of dry species would be difficult: a gradual change would be experienced, till in February and March the dry and hot season would have come in, vegetation would be more or less checked, and the preservation of dry specimens would be easy. Returning towards the end of March the English winter would be past, and, if he be a teacher, the traveller would be in time for the summer session in our Universities or medical schools.

Once on the spot the first question is one of accommodation. At Peradeniya there are neither hotels nor lodgings; a house must be taken and temporarily furnished, and it is surprising how cheaply this can be done. I took a small bungalow, the rent of which was Rs. 40 per month; friends lent me some articles of furniture, and an expenditure of Rs. 150 supplied all else that was required for temporary housekeeping. The cost of keeping house, including the wages of two native servants, rent, &c., with a margin for incidental expenses, may be set down at about Rs. 250 per month; allowing further some Rs. 200 for travelling expenses, it will be found that Rs. 1,500 will represent the total necessary expenses of residence in the island for four months. But in its present depreciated state, the rupee is worth only about 1*s.* 6*d.*: it will therefore be sufficient to lodge about 115*l.* at a bank in Ceylon to cover all necessary expenses for four months' residence. I would not advise, however, that that exact sum only should be transferred; it would be more prudent to allow a margin for possible contingencies. The total expenses of a six months' trip to Peradeniya may thus be set down as 250*l.* But there are various ways in which strict economy might reduce the cost, while if two friends were to club together, their individual expenses for housekeeping would be considerably below the sum above stated for one. Thus it will be seen that neither in difficulty of transit nor in point of expense are there sufficient obstacles to prevent a visit to Peradeniya, or some similar station, finding a place in the programme of the career of an average botanist. One of the chief obstacles will be felt by many to be the loss of possible opportunities while absent, or the break in continuity of teaching, or other work in which a man may be already engaged. I venture to think that these are much overrated objections; and against them may be set the very great advantages which a tropical visit carries with it. A further question is, at what period in a man's career will a visit of this sort best repay him? Some will say immediately after taking his degree: but I am inclined to think that even a first-class man is at that time hardly prepared to make the best of the opportunity should it offer. The experience gained by a few years of teaching and of original work at home will indicate what is to be expected and what is to be looked for, and will fit a man in many ways for striking out new lines for himself, even if it have not already defined for him a clear line of research. On the other hand, it is important that travelling should be undertaken before a man settles in life, so that his mind may be as free as possible from distractions and anxieties.

We may now pass on to consider what are the specific advantages presented by Peradeniya as a station for botanical work. It is, as I have said, easily accessible; being more than 1500 feet above the sea, the excessive heat of the low country is avoided, and it may be regarded as a decidedly healthy place. Secondly, it is situated in a central position, both as regards the whole island, and as regards the chief lines of communication by rail and road. Thus it is easy to gain access to the low country by train to Colombo, whence roads, traversed often by horse coaches, will lead along the coast, or inland in various directions; or, taking the up-country line, Newara Eliya may be visited, which lies about 6000 feet above the sea, and would serve as a good centre for working the higher levels; or again, a journey northwards by train and coach to Anuradhapura would give an insight into the low-level vegetation of the drier northern districts. From the above notes it will be readily seen how varied is the character of the country within easy reach from Peradeniya, presenting within a comparatively small area districts varying from the sea-level to 8000 feet, and including both damp and relatively dry areas at low levels. This in itself would lead one to expect a rich and varied flora; and in fact the list of native plants now numbers some 3000 species, a very considerable proportion of which are peculiar to the island. These and other natural advantages are, however, eclipsed by the importance of the Royal Gardens themselves as providing a field for those hitherto unfamiliar with tropical nature. Here there are collected in a small area a great variety of species, both native and imported; truly no botanist who has resided at Peradeniya can any longer complain of want of scope; if he does not find ample material for future work, he can only lay the blame on his own want of imagination. In the excellent herbarium and library, as well as in the fine series of coloured figures of native plants which are lodged in the Garden, he would find the greatest assistance in recognising and naming plants collected; while lastly, in the presence of the Director, who is the best living authority on the flora of Ceylon, are found those social and scientific elements which go far to enhance the pleasure of a visit to Ceylon.

In my former article mention was made of Java, where the Gardens of Buitenzorg, presided over by Dr. Treub, present great attractions for botanists. In my case, shortness of the time at my disposal prevented a visit to this famous Garden, and probably the same difficulty will present itself to others. There is, however, one conspicuous advantage which it possesses over Peradeniya as a station for botanical research, viz. a well appointed laboratory. If, as seems not improbable, a journey to the tropics and a period of steady work among tropical plants become a usual prelude to a career of active teaching in botany, ought not the English to provide themselves with some suitable station for such work? Is every man, whether well-to-do or impecunious, to depend upon his own resources alone for laboratory accommodation, reagents, glass, and all other accessories necessary for his work? or are we to be content to send our botanists to suck what advantage they can from the hospitable Dutch, just as we send our forestry students to study with the French? Surely it would be a most legitimate way of extending the usefulness of the Garden at Peradeniya, and, in a small way it is true, of guarding the credit of England as a tropical Power, to establish a laboratory for the use of travellers. It need not be a large or conspicuous building. Dr. Trimen tells me that suitable accommodation for the present could be found in the buildings already standing in the Gardens, and probably 100*l.* would cover the initial cost of supplying the bare necessaries of life in the laboratory. The knowledge that such accommodation would be found at the other end would certainly encourage those who are doubtful to undertake a journey to Ceylon.

It may be noted that no mention has been made of the Western tropics as a field for research; there can be no doubt as to the richness of the field, but I am not aware that there are any stations in the West which can compare with Peradeniya or Buitenzorg in convenience, accessibility, and general adaptation to the requirements of those who contemplate only a comparatively short visit.

Lastly, the cost of the journey will be found to be the most frequent deterrent from undertaking it; 250*l.* is a large sum to spend upon six months' work which can bring no direct financial return, however great may be the ultimate advantage gained from it; travelling Fellowships are

few; but still there are other sources from which grants may well be made to assist really promising students in attaining so desirable an end; and it is to be hoped that it may be regarded as a legitimate and not unfrequent outlet for public or private grants, to enable young men, who will ultimately engage in teaching, towards the attainment of experience which must always be of value to them in the exercise of their profession.

F. O. BOWER

NOTES

THE following is the list of Fellows elected into the Royal Society on Friday last, June 4:—Shelford Bidwell, M.A., William Colenso, F.L.S., Harold B. Dixon, F.C.S., Major-Gen. Edward Robert Festing, R.E., Andrew Russell Forsyth, M.A., Prof. A. H. Green, M.A., Prof. Victor Horsley, F.R.C.S., Raphael Meldola, F.R.A.S., Philip H. Pye-Smith, M.D., Henry Chamberlaine Russell, B.A., Adam Sedgwick, M.A., Prof. W. Cawthorne Unwin, B.Sc., Robert Warington, F.C.S., Capt. William James Lloyd Wharton, R.N., Henry Wilde.

ARRANGEMENTS are being made by the officers of several French Societies for holding an International Congress at Biarritz for discussing papers upon climatology, mineral and thermal springs, and allied subjects. A letter has been received from the Foreign Office transmitting copies of documents, and stating that the French Government is anxious that members of scientific Societies in this country should assist. The co-operation of the Royal Meteorological Society has also been specially asked by the President of the Congress, Dr. Durand Fardel. The sittings at Biarritz will occupy the first week in October, and be followed by a three weeks' tour to the principal watering-places of Southern France. Fellows of the Royal Meteorological Society will be allowed to travel over all French railways at half price. For further particulars apply to the Assistant Secretary of the Society.

THE Council of the Society of Arts have awarded the Society's silver medals to the following leaders of papers during the Session, 1885-86:—To Prof. Francis Elgar, LL.D., for his paper on the load-lines of ships; to Henry Davey, for his paper on machinery in mines; to Prof. W. C. Unwin, for his paper on the employment of autographic records in testing materials; to C. V. Boys, for his paper on calculating machines; to Prof. Leonard Waldo, D.Sc., for his paper on watch-making by machinery; to John Mackenzie, for his paper on Bechuanaland and Austral Africa; to Edward Combes, C.M.G., for his paper on the industries and commerce of New South Wales; to G. Gordon Hake, for his paper on Cyprus since the British occupation; to Prof. W. N. Hartley, F.R.S., for his paper on photography and the spectroscope in their application to chemical analysis; to Prof. R. Meldola, for his paper on the scientific development of the coal-tar colour industry; to B. H. Baden Powell, C.I.E., for his paper on Indian manufactures from a practical point of view; to Capt. Richard Carnac Temple, for his paper on the every-day life of Indian women. Thanks were voted to the following members of the Council for the papers read by them:—To Capt. Douglas Galton, D.C.L., C.B., F.R.S., for his paper on results of experiments on mechanical motors for tramways made by the Commission at the Antwerp Exhibition; to W. H. Preece, F.R.S., for his paper on domestic electric lighting.

THE Society of Arts *conversazione* will be held, by permission of the Royal Commission, at the Colonial and Indian Exhibition, South Kensington, on Friday, July 16 next.

MR. TALFOURD ELY has resigned the Secretaryship of University College, London.

THE Russian Geographical Society has awarded this year its great gold medal to M. Yurgens for his remarkable work as chief of the Arctic Meteorological Station at the mouth of the Lena. The Medal of Count Lütke has been awarded to Col. Pyevtsoff for his most valuable account, full of new and interesting information, of his journey in N.W. Mongolia and Northern China, published, with a map, in the fifth volume of the West Siberian Branch of the Society. Great gold medals have been awarded to M. Dmitrevsky for his annotated translation of Otano Kitoro's work on Corea, and M. Tereshkevitch for his statistical description of the Government of Poltava. Small gold medals were awarded, to Prof. Lenz for his work in the capacity of President of the Physical Geography Section of the Society; to M. Fuss, for his calculations of the great levelling through Siberia; to the Director of the Tiflis Observatory, M. Milberg, for his magnetical observations carried on in connection with those of the Polar stations; and to M. Mainoff, for his work on the customary law of the Mordovians. Several silver medals were distributed to MM. Gedeonoff, Fedoroff, Krasnoff, and Ignatieff for astronomical, geological, and botanical works; to several persons who have sent observations on thunderstorms and rains, as also for various ethnographical and statistical researches.

THE Town Council of Banff, along with the Council of the Banffshire Field Club and Office-Bearers of the Banff Literary Society, have formed themselves into a General Committee (with power to add to their number) to promote the subscription of a fund for the erection of a memorial in Banff to the memory of the late Mr. Thomas Edward, A.L.S., "The Scottish Naturalist." The Committee feel sure it will be the desire of many throughout the whole nation to contribute to this fund, and to combine to make the memorial worthy of the universal admiration and respect entertained for Mr. Edward. In order to afford full opportunity for this, it is proposed to add to the Committee ladies and gentlemen throughout the various parts of the country who so appreciate Mr. Edward's life and work as to be willing to interest themselves in providing some substantial and suitable perpetuation of his memory. Communications should be addressed to the Interim Secretary, Mr. John Allan, Town Clerk of Banff.

THE Prince of Wales, considering that the rates of admission to the Colonial and Indian Exhibition at South Kensington should be brought within the means of all classes residing in the Metropolitan area, is making arrangements with the Railway Companies and other bodies in a position to co-operate in the organisation of a scheme whereby every working man, woman, and child will have an opportunity of visiting the Exhibition at greatly reduced prices on every week-day except Wednesday from the middle of August until the close of the Exhibition. Arrangements for enabling the working classes of the provinces to visit the Exhibition have been for some time in operation, under his Royal Highness's direction.

THE first of the conferences convened by the Geologists' Association on "The Mineral Resources of the Colonies and India," was held at the Colonial and Indian Exhibition on Saturday afternoon (June 5), when a lecture was delivered by Prof. V. Ball, F.R.S., on "The Mineral Resources of India and Burmah." The discussion brought out the urgent need for reform of the mining laws of India, and the following resolution, proposed by the chairman (Sir R. Temple), seconded by the Duke of Manchester, and supported by the lecturer and others, was unanimously adopted:—"This Conference having had under its review the mineral resources of India and the obstacles to development and exploitation of the same through the want of suitable or sufficient mining laws, respectfully urges upon the Secretary of State for India the desirability of regulating or revising the regulations for the working of mines in British India, including Burmah, and for the protection of mining interests